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TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

Mr. Duane Heaton
Deputy Project Officer
Emergency Support Section, 5HS-12
U.S. Environmental Protection Agency
230 South Dearborn Street
Chicago, IL 60604

June 11, 1990

TAT-05-G2-01836

Re: Southeast Rockford, Rockford, Illinois
TDD# 5-8909-33

Dear Mr. Heaton:

On September 27, 1989, the U.S. Environmental Protection Agency (U.S. EPA) tasked the Technical Assistance Team (TAT) to conduct an extent of contamination (EOC) study among residences in southeastern Rockford, Illinois. The following letter report summarizes TAT activities and results of the EOC study.

The Southeast Rockford site is located in an unincorporated area south of Rockford, Winnebago County, Illinois (Figure 1). The site consists of a large ground water contamination plume below a residential neighborhood which is roughly two square miles in area. The boundaries for the site are Harrison Street on the north, Sandy Hollow Road on the south, Eighth Street on the west, and 24th Street on the east (Figure 2). The U.S. EPA Emergency and Enforcement Response Branch conducted an EOC study within these boundaries.

The Southeast Rockford site is primarily residential, with retail businesses on Eleventh Street. The area surrounding the site is primarily industrial to the north and east, and residential to the south and west. Rolling hills, approximately 25 feet high, extend south of Brooke Street to the southern boundary and from 18th Street to the eastern boundary. The remaining site topography is flat. There is an unnamed, intermittent creek flowing roughly east-west in the northern part of the study area. The Rock River is approximately 1.5 miles to the west. There are no lakes or ponds within the boundaries of the site.

All of the affected water wells in the site are completed in sand and gravel glacial outwash associated with the Rock River Bedrock Valley. These sediments extend to a depth of approximately 120 feet where they are underlain by a clay layer. Below this clay layer are a series of fresh water, sand and gravel aquifers which

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In Association with ICF Technology, Inc., C.C. Johnson & Malhotra, P.C., Resource Applications, Inc.,
and R.E. Sarriera Associates

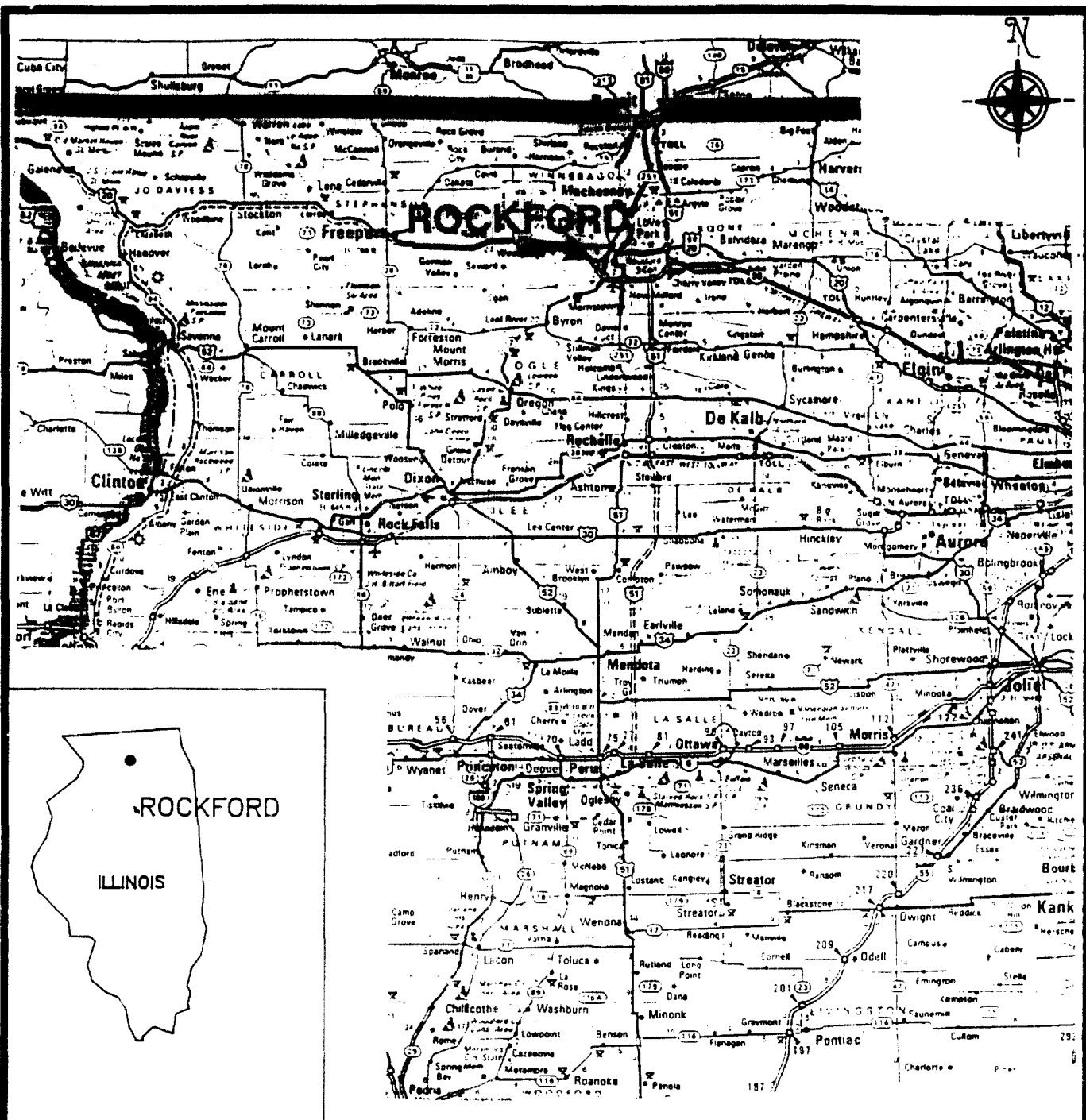


FIGURE 1
SITE LOCATION MAP
SOUTHEAST ROCKFORD
ROCKFORD, ILLINOIS

1 INCH = 20 MILES

WESTON
MANAGERS DESIGNERS/CONSULTANTS

DRAWN BY	DATE	PCS #
SCB	1-03-90	2423
APPROVED BY	DATE	TDD #
R.MEHL	1-03-90	5-8909-33

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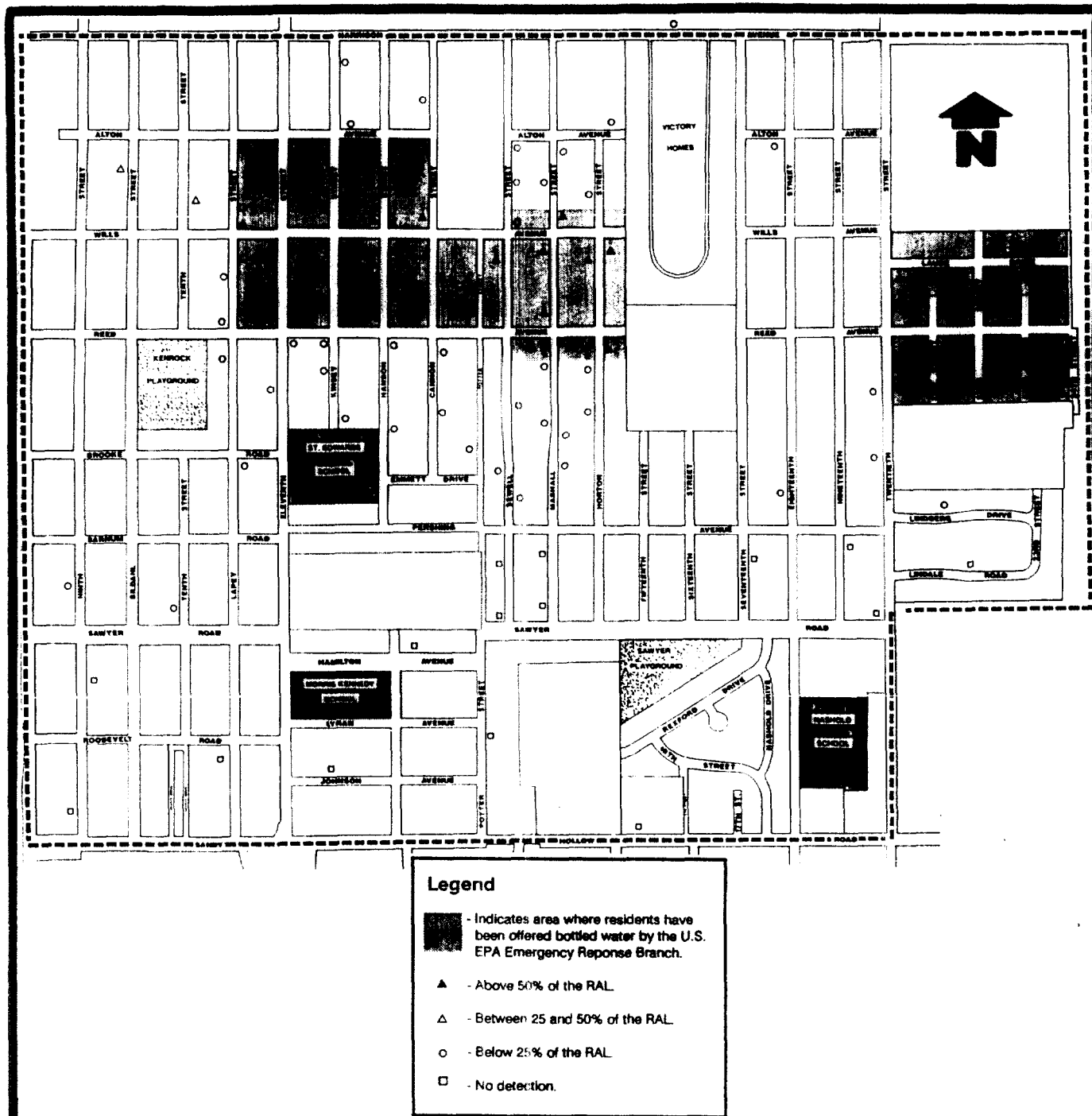


FIGURE 2
SITE BOUNDARIES
WITH VOC CONCENTRATIONS
SOUTHEAST ROCKFORD
ROCKFORD, ILLINOIS

NO SCALE



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REGION V TECHNICAL ASSISTANCE TEAM

DRAWN BY A. POTJE	DATE 4-4-90	PCS # 2423
APPROVED BY A. POTJE	DATE 4-4-90	TDD # 5-8909-33



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the City of Rockford taps for its municipal water supplies. The depth of private water wells in the area ranges from 25 to 110 feet. The regional ground water flow in the Rockford area is towards the west, in the direction of the Rock River.

The primary contaminants of concern are industrial solvents and degreasers such as trichloroethylene (TCE), 1,1,1,-trichloroethane (TCA), and cis-1,2-dichloroethene (CIS-DCE). Minor contaminants include trans-1,2-dichloroethene (TRANS-DCE), 1,2-dichloroethane (1,2-DCA), and 1,1-dichloroethane (1,1-DCA).

Portions of Southeast Rockford have had an identified ground water contamination problem since 1984. The problem was discovered during an investigation by the Illinois Environmental Protection Agency (IEPA) into illegal dumping by an electroplating company in 1984. The Illinois Department of Public Health (IDPH), upon analyzing the samples provided by the IEPA, detected the presence of several volatile organic compounds (VOCs), including TCA and TCE. The IDPH conducted well water sampling in 1984-85. IDPH sampling was curtailed in 1986-87, but was resumed on a large-scale in the summer of 1988. Results of the samples showed elevated levels of VOCs to be present in many private water wells within the boundaries of the site.

In early 1989, the site was placed on the National Priorities List (NPL). In the summer of 1989, pursuant to the directive of U.S. EPA Administrator William K. Reilly, a large number of NPL sites were identified for reevaluation of threats to public health. The Southeast Rockford site was among those identified. On August 2, 1989, the U.S. EPA tasked the TAT to evaluate the threats at the site and assist the Agency in determining if accelerated U.S. EPA action was warranted.

The TAT conducted a site assessment on August 10, 1989 (TDD# 5-8909-27). TAT members Bob Young and Maureen O'Mara collected samples from two residential water wells. Analytical results revealed levels of CIS-DCE which exceeded the removal action level (RAL) for this chemical, prompting further action by the U.S. EPA. The TAT then assisted the U.S. EPA in planning and implementing a large-scale ground water testing program for the site. TAT members Steve Bennett and Anne Potje and U.S. EPA On-Scene Coordinator (OSC) Ken Theisen collected eighty-seven well water samples on October 5, 6, and 7, 1989. The OSC and TAT collected samples from every fourth house on each block within the site boundaries, approximating a grid pattern for the area.

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TAT conducted a second sampling action on October 20, 21, and 23, in which thirty-one samples were collected. The final sampling phase was conducted on December 6, 1989, during which ten samples were collected by TAT. Twelve samples were randomly selected for full scan VOC analysis. The remaining samples were analyzed for TCA, TCE, CIS-DCE, TRANS-DCE, 1,2-DCA, and 1,1-DCA. All samples were analyzed under TAT Analytical Services TDD# 5-8909-L08, by Enviroscan in Rothschild, Wisconsin.

Analytical results are presented in three tables and three maps. Table 1 summarizes the six chemicals that were present in the water samples and their respective RALs. Table 2 identifies sample locations, and corresponding analytical results for the six VOCs analyzed. Table 3 summarizes the full scan VOC results for the twelve randomly selected residences.

The analytical results indicate that CIS-DCE concentrations exceeded the RAL at two residences, and approached the RAL at several other residences. A maximum TCE concentration of 120 parts per billion (ppb) was detected, which approaches the RAL of 128 ppb. A maximum TCA concentration of 397 ppb also approached the 500 ppb RAL established for this chemical. Levels of up to 133 ppb of 1,1-DCA were detected, though no RAL exists for this chemical.

Figure 2 displays the location of residences sampled by TAT. The symbols that mark each sample location also denote VOC concentrations relative to RALs. The VOC in highest concentration at a given residence is expressed as a percentage of the corresponding RAL. Figure 3 illustrates that the contaminant plume forms a 700 to 900 foot wide band trending west-northwest throughout the northern portion of the study area. Values below 25 percent (%) of the RAL drop off rapidly on either side of this band. The extent of contamination on the eastern and western boundaries of the site has yet to be defined. The highest concentrations occur east of 20th Street. The magnitude and consistency of these high values suggests that this area may be near the source of contamination.

As evidenced in Figure 4, analytical results of samples collected by the IDPH support the extent of contamination suggested by U.S. EPA data. At the 190 locations sampled by the IDPH, the VOCs detected did not exceed the RAL for any chemical. Twenty samples had individual VOC values greater than 50% of the corresponding RAL. The confinement of the contaminants to a narrow band may be due to a subsurface geological feature, such as an ancient river channel.

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TABLE 1
REMOVAL ACTION LEVELS (RALs) *
FOR SIX CHEMICALS
SOUTHEAST ROCKFORD SITE
ROCKFORD, ILLINOIS

<u>Chemical</u>	<u>Abbreviation</u>	<u>RAL - parts per billion</u> (ppb)
Trichloroethylene	(TCE)	128 ppb
1,1,1-Trichloroethane	(TCA)	500 ppb
cis-1,2-Dichloroethylene	(CIS-DCE)	175 ppb
trans-1,2-Dichloroethylene	(TRANS-DCE)	175 ppb
1,2-Dichloroethane	(1,2-DCA)	38 ppb
1,1-Dichlorethane	(1,1-DCA)	Not Available

* OSWER Directive 9360.1-10 Interim Final Guidance on Removal Action Levels at Contaminated Drinking Water sites.

TABLE 2

ANALYTICAL RESULTS OF TAT SAMPLING*
SOUTHEAST ROCKFORD SITE
ROCKFORD, ILLINOIS
OCTOBER 3 TO DECEMBER 6, 1989

All units are reported in micrograms per liter

ADDRESS	COMPOUND					
	TCE	TCA	CIS	TRANS	1,2-DCA	1,1-DCA
=====						
3226 9TH STREET	0.56	2.01	ND	ND	ND	ND
3329 9TH STREET	ND	0.60	ND	ND	ND	ND
2730 10TH STREET	28.0	142.	29.6	ND	ND	31.3
3141 10TH STREET	1.99	4.27	ND	ND	ND	ND
3141 10TH STREET (DUP)	1.99	5.21	ND	ND	ND	ND
2718 11TH STREET	34.8	167.	42.9	ND	ND	40.4
2822 11TH STREET	9.90	54.5	7.15	ND	ND	8.26
2826 11TH STREET	27.2	68.4	21.3	ND	ND	22.0
2902 11TH STREET	10.5	35.2	5.21	ND	ND	4.83
2929 11TH STREET	3.40	13.2	2.40	ND	ND	2.02
3118 17TH STREET	1.25	2.51	ND	ND	ND	ND
2701 18TH STREET	1.37	7.55	5.23	ND	ND	10.1
3025 18TH STREET	2.72	9.25	3.32	ND	ND	1.77
3112 19TH STREET	0.75	1.12	ND	ND	ND	ND
2814 20TH STREET	120.	283.	138.	2.50	4.00	133.
2917 20TH STREET	16.3	88.4	29.8	ND	ND	18.2
3015 20TH STREET	2.17	11.3	2.54	ND	ND	ND
3141 20TH STREET	ND	ND	ND	ND	ND	ND
2816 21ST STREET	68.4	297.	96.4	1.24	1.50	81.9
2816 21ST STREET (DUP)	73.1	279.	98.0	1.28	1.59	66.4
2825 21ST STREET	73.8	306.	95.0	ND	ND	64.3
2922 21ST STREET	31.7	151.	94.6	ND	1.96	40.7
2817 23RD STREET	91.3	384.	113.	1.20	2.09	76.1
2901 22ND STREET	56.2	235.	37.8	ND	ND	33.9
2923 22ND STREET	17.0	75.7	42.3	ND	0.62	25.6
2830 23RD STREET	68.7	261.	95.2	0.94	1.36	61.2
2911 23RD STREET	65.6	343.	273.	1.32	2.85	103.
2917 24TH STREET	79.3	397.	323.	1.62	2.80	117.
2935 24TH STREET	17.4	122.	93.9	ND	1.03	41.7
2522 25TH STREET	0.45	23.8	ND	ND	ND	2.91
2136 ALTON	2.29	21.0	7.06	ND	ND	6.90
2717 BILDAHL	25.1	132.	27.5	ND	ND	29.8
220 BROOKE ROAD	ND	ND	ND	ND	ND	ND
2637 CANNON	2.19	39.6	3.76	ND	ND	6.75
2741 CANNON	36.8	158.	40.4	ND	1.12	38.2
2822 CANNON	24.6	140.	42.0	ND	0.75	47.9
2822 CANNON (DUP)	24.9	143.	40.2	ND	0.76	48.2
2837 CANNON	37.0	88.3	24.1	ND	0.52	23.8
2934 CANNON	9.42	33.5	5.37	ND	ND	4.22
3008 CANNON	3.25	13.2	3.08	ND	ND	2.19
3007 CARLSON ROAD	1.37	ND	1.90	ND	ND	ND
3113 CARLSON ROAD	21.9	0.62	1.92	ND	ND	ND
2737 HANSON	24.8	109.	26.3	ND	ND	24.9
2737 HANSON (DUP)	22.1	100.	23.3	ND	ND	22.8
2745 HANSON	41.8	172.	42.6	ND	1.86	49.1
2804 HANSON	19.1	201.	47.5	0.57	0.99	43.8
2833 HANSON	23.9	52.8	17.6	ND	ND	17.8
2846 HANSON	28.3	75.0	20.8	ND	ND	18.8
2913 HANSON	10.6	28.3	5.34	ND	ND	4.38
2930 HANSON	5.97	18.5	3.09	ND	ND	2.73
3000 HANSON	2.78	11.2	2.54	ND	ND	1.75
2725 HORTON	11.4	45.4	39.6	ND	1.42	57.8

TABLE 2 (continued)

ADDRESS	COMPOUND					
	TCE	TCA	CIS	TRANS	1,2-DCA	1,1-DCA
2806 HORTON (DUP)	40.0	197.	50.6	0.76	2.76	42.4
2806 HORTON	52.4	255.	66.1	0.82	2.86	55.3
2817 HORTON	67.8	305.	65.5	0.68	2.39	58.8
2914 HORTON	44.0	147.	40.3	ND	1.61	40.0
2921 HORTON	22.9	75.5	19.8	ND	ND	15.6
2941 HORTON	26.4	57.4	19.7	ND	1.33	22.0
2941 HORTON (DUP)	25.0	60.0	19.0	ND	1.27	21.3
1625 JOHNSON AVE	ND	ND	ND	ND	ND	ND
2614 KINSEY	1.18	16.7	3.42	ND	ND	9.90
2742 KINSEY	33.4	156.	39.7	ND	1.50	38.0
2815 KINSEY	33.7	133.	27.7	ND	0.57	33.8
2833 KINSEY	17.8	62.9	11.9	ND	ND	10.9
2901 KINSEY	5.56	18.1	2.63	ND	ND	2.62
2917 KINSEY	1.90	7.31	0.86	ND	ND	0.90
2946 KINSEY	2.67	5.35	1.86	ND	ND	1.50
2734 LAPEY	17.4	21.0	23.5	ND	ND	27.1
2746 LAPEY	29.9	158.	29.2	ND	0.77	32.2
2746 LAPEY (DUP)	30.0	160.	28.4	ND	0.75	32.6
2814 LAPEY	16.3	65.4	14.0	ND	ND	14.2
2814 LAPEY (DUP)	16.3	66.8	14.0	ND	ND	14.6
2845 LAPEY	13.3	47.3	7.35	ND	ND	7.01
2911 LAPEY	3.62	14.2	2.11	ND	ND	1.93
3002 LAPEY	2.29	7.35	0.63	ND	ND	0.70
3002 LAPEY (DUP)	2.29	7.35	0.62	ND	ND	0.69
3031 LAPEY	1.42	4.80	ND	ND	ND	ND
3305 LAPEY	ND	ND	ND	ND	ND	ND
2512 LINDALE ROAD	0.89	1.25	ND	ND	ND	ND
2518 LINDBERG	3.09	7.66	1.9	ND	ND	1.16
2484 MARIPOSA DRIVE	ND	ND	ND	ND	ND	ND
2706 MARSHALL	11.3	54.8	26.8	ND	0.95	39.9
2717 MARSHALL	1.10	16.0	5.61	ND	ND	17.9
2738 MARSHALL	65.6	329.	93.0	1.14	2.53	75.3
2801 MARSHALL	62.4	310.	74.7	0.79	2.01	61.2
2837 MARSHALL	39.4	156.	40.2	ND	1.40	40.8
2905 MARSHALL	38.3	113.	31.5	ND	0.93	26.0
2925 MARSHALL	19.1	44.4	14.4	ND	ND	12.5
2941 MARSHALL	10.5	30.3	6.84	ND	ND	4.96
3006 MARSHALL	10.6	13.5	7.55	ND	1.26	12.5
3030 MARSHALL	5.88	3.06	3.80	ND	2.01	9.11
3111 MARSHALL	1.41	2.64	ND	ND	ND	ND
3133 MARSHALL	1.79	3.15	ND	ND	ND	ND
606 NEW MILFORD AVE	21.7	37.2	0.74	ND	ND	0.87
2829 POTTER	30.4	165.	31.7	ND	1.20	33.9
2929 POTTER	13.6	39.3	7.59	ND	ND	5.77
3318 POTTER	ND	ND	ND	ND	ND	ND
3318 POTTER (DUP)	ND	ND	ND	ND	ND	ND
823 RANGER STREET	17.5	41.3	12.9	ND	1.86	16.3
823 RANGER STREET (DUP)	17.6	40.8	13.3	ND	2.04	16.7
2106 SANDY HOLLOW	ND	ND	ND	ND	ND	ND
2702 SEWELL	1.53	15.6	4.74	ND	ND	14.7
2722 SEWELL	2.85	27.5	11.5	ND	ND	29.9
2742 SEWELL	0.53	5.76	0.58	ND	ND	0.78
2813 SEWELL	38.8	227.	41.4	ND	1.73	44.0
2841 SEWELL	24.2	106.	35.3	ND	1.12	36.7
2922 SEWELL	18.6	49.5	14.1	ND	ND	11.8
3002 SEWELL	9.51	26.4	5.87	ND	ND	4.06
3032 SEWELL	2.58	9.02	2.12	ND	ND	1.43
3119 SEWELL	ND	ND	ND	ND	ND	ND
3141 SEWELL	ND	ND	ND	ND	ND	ND
3141 SEWELL (DUP)	ND	ND	ND	ND	ND	ND
5002 SHERWOOD FOREST	ND	ND	ND	ND	ND	ND

* All samples analyzed by Enviroscan, Rothschild, Wisconsin.

ND = Not detected at method detection limits

DUP = Duplicate

US 00253

TABLE 3

ANALYTICAL RESULTS OF TAT SAMPLING*
 FULL SCAN ORGANICS
 SOUTHEAST ROCKFORD SITE
 ROCKFORD, ILLINOIS
 October 3, to December 6, 1989

All results reported in micrograms per liter

COMPOUND	SAMPLE LOCATION											
	3021 9th	2826 22nd	2827 24th	1621 Alton	2729 Cannon	2904 Cannon	1724 Hamilton	2833 Horton	2706 Lapey	2825 Lapey	2806 Sewell	3115 S. Alpine
Bromoform	ND	1.1J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	8.3	5.5	3.8J	3.4J	ND	ND	3.7J	4.1J	ND	3.9J	ND
Chloromethane	ND	ND	2.8J	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	109	85.3	57.0	71.2	12.4	ND	47.0	56.6	1.9J	47.3	ND
1,2-Dichloroethane	ND	4.0J	2.2J	1.8J	1.5J	ND	ND	1.3J	1.9J	ND	1.6J	ND
1,1-Dichloroethylene	ND	43.2	42.7	27.6	29.5	7.7	ND	28.6	31.0	8.6	26.0	ND
1,2-Dichloroethylene	ND	158.	96.3	22.5	37.8	5.7	ND	20.1	33.6	ND	22.4	ND
Dichloromethane**	1.8J	2.1J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	1.9J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	6.7	6.6	ND	ND	ND	ND	2.6J	ND	ND	2.3J	ND
1,1,1-Trichloroethane	3.0J	227.	245.	162.	168.	35.6	2.1J	142.	143.	136.	222.	ND
1,1,2-Trichloroethane	ND	2.8J	1.6J	ND	ND	ND	ND	ND	1.1J	ND	ND	ND
Trichloroethylene	ND	67.1	104.	32.7	44.0	15.5	ND	59.4	58.9	18.1	40.5	ND
Trichlorofluoromethane	ND	3.0J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

* All samples analyzed by Envirodyne, Rothschild, Wisconsin

** May be due to lab contamination

ND = Not detected at method detection limits

J = Estimated value, below method detection limit

Other compounds analyzed but not detected: Benzene; Bromomethane; Carbon Tetrachloride; Chlorobenzene; Chloroethane; 2-Chloroethylvinyl Ether; Dibromochloromethane; Dichlorobromomethane; 1,2-Dichloropropane; cis-1,3-Dichloropropene; trans-1,3-Dichloropropene; Ethylbenzene; Toluene; Vinyl Chloride; m & p-Xylene; o-Xylene.

ELEVENTH

ST. EDWARDS

SCHOOL

EMMETT

DRIVE

PERSHING

FIGURE 3

CONTOUR MAP OF CONTAMINATION
AT SOUTHEAST ROCKFORD SITE
(U.S. EPA DATA)

ROCKFORD, ILLINOIS

SCALE: 1 INCH = 80'

LEGEND

- ABOVE 100% RAL
- ▲ 50% - 100% RAL
- △ 25% - 50% RAL
- BELOW 25% RAL
- BELOW DETECTION

US 00255

HARRISON

ST. EDWARDS

SCHOOL

ELEVENTH

EMMETT

DRIVE

1%

PERSHING

FIGURE 4

CONTOUR MAP OF CONTAMINATION
AT SOUTHEAST ROCKFORD SITE
(IDPH DATA)

ROCKFORD, ILLINOIS

SCALE: 1 INCH = 80'

LEGEND

- ▲ ABOVE 50% RAL
- △ 25% 50% RAL
- BELOW 25% RAL
- BELOW DETECTION

US 00256

HARRISON



Mr. Duane Heaton

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June 11, 1990

Conditions observed at the Southeast Rockford site that may be considered in determining the appropriateness of a removal action as set forth in paragraph (b)(2) of Section 300.415 of the National Contingency Plan (NCP) include:

- o Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations, animals or food chain; and
- o Actual or potential contamination of drinking water supplies or sensitive ecosystems;

Actual or potential exposure to the residents of Southeast Rockford is documented by the presence of contaminants in the drinking water. These contaminants, listed in Table 1, are all contact irritants, and central nervous system depressants. Most are known to cause liver and kidney damage, and some are known carcinogens.

U.S. EPA and IDPH data indicate that there has been actual contamination of drinking water supplies in the Southeast Rockford site.

Beginning on October 30, 1989, the U.S. EPA supplied bottled water to affected residents for one month while arrangements were made for the installation of residential filter systems. During October 1989, the OSC and TAT distributed survey forms and used the information gathered from these forms to generate a mailing list of affected residents. Water filter election forms were mailed to residents on November 17, 1989. Beginning on November 27, 1989, the U.S. EPA installed water filters for the 189 residents who agreed to receive this form of mitigation. The long-term solution to this problem, which is slated to begin in Spring 1990, is the installation of water mains and the eventual hook-up of all affected residents to municipal water supplies.

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Mr. Duane Heaton

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June 11, 1990

Should you have any questions or require further information,
please feel free to contact us.

Very truly yours,

ROY F. WESTON, INC.

Steve Bennett
FOR Steve Bennett
Chemist

William R. Doyle
William R. Doyle
Technical Assistance Team
Leader, Region V

SB:dn

cc: K. Theisen, OSC

US 00258